

REMARKS**Allowable Subject Matter**

The Office has found claims 6, 10, 12, 24, 25, 31-34 and 40-41 to recite allowable subject matter.

Rejection of Claims and Traversal Thereof

In the September 26, 2005 Office Action:

claims 1-4, 7, 13-22, 26, 35-39 and 42-43 were rejected under 35 U.S.C. §103(a) as being unpatentable over Nakabayashi et al. (U.S. Patent No. 6,271,077, hereinafter Nakabayashi) in combination with Hoke, et al. "Low Temperature Vapor deposition of High-purity Iridium Coatings from Cyclooctadiene complexes of Iridium." (1991) J. of Material Chemistry, 1(4) pp. 551-554.

This rejection is hereby traversed in application to pending claims.

Rejections under 35 U.S.C. §103

Claims 1-4, 7, 13-22, 26, 35-39 and 42-43 were rejected under 35 U.S.C. §103(a) as being unpatentable over Nakabayashi in combination with Hoke. Applicants respectfully traverse this rejection and submit that the proposed combination does not render Applicants' claimed invention *prima facie* obvious.

According to the Office:

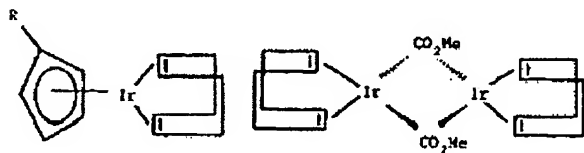
"Nakabayashi, et al. (6,271,077) fails to teach using an organic solvent solution as the iridium precursor. Hoke et al, "Low-Temperature Vapor deposition of High-purity Iridium Coatings from Cyclooctadiene complexes of Iridium." Teaches MOCVD of Iridium coating which utilize organic solvent precursors. Therefore it would have been obvious for one skilled in the art at the time of the invention was made to have modified Nakabayashi et al. (6,271,077) to utilize MOCVD precursors of Hoke et al., . . . with the expectation of achieving similar success as both sets of precursors are taught to be applicable to CVD coating processes."

Applicants vigorously disagree with the Office's interpretation of contents of Hoke. Applicants' claim 1 recites:

1. A method of forming an iridium-containing film on a substrate, comprising use of an organic solvent solution, said organic solvent solution comprising an iridium-containing precursor that is decomposable to deposit iridium on the substrate, said method comprising decomposing the precursor from said solution and depositing iridium on the substrate in an oxidizing ambient environment, wherein the decomposition of the precursor and deposition of iridium on the substrate is carried out by a process selected from the group consisting of chemical vapor deposition (CVD), assisted-CVD, ion plating, rapid thermal processing, and molecular beam epitaxy

Clearly, applicants claimed invention includes not only the iridium precursor but a separate and distinct organic solvent and this is not described or suggested in the Hoke reference. Instead, the Hoke reference teaches the use of an iridium complex as shown below:

The three cyclooctadiene iridium precursors chosen for this study were (MeCp)Ir(COD) (MeCp = methylcyclopentadienyl), CpIr(COD) (Cp = cyclopentadienyl),⁸ and [(COD)Ir(μ -OAc)]₂ (OAc = acetate).¹¹



wherein the iridium compound includes the cyclooctadiene as a cleavable group of the complex. Applicants reviewed the Hoke reference and could not find any text that defines an organic solvent that is separate from the iridium complex. The mere fact that the iridium complex of Hoke includes a cleavable cyclooctadiene group does not mean that there is a separate organic solvent and the Office is not allowed to speculate on such an occurrence without some teaching or suggestion in the reference.

All of the deposition methods discussed in Hoke include deposition in the presence of hydrogen, oxygen or in a vacuum without a carrier gas. In fact, the reference expressly states that if hydrogen is not used to cleave the organic ligands from the iridium there is a high content of carbon. (see top of column 2 at page 552 of Hoke). Thus, the organic ligands bound to the iridium are not considered to be an organic solvent but instead a part of the iridium complex. Clearly, the need for cleaving of the organic ligand would not even be discussed by Hoke, if the cyclooctadiene was not attached to the iridium metal.

Further, the Hoke reference states that if oxygen is used for oxidation of the iridium complexes, the presence of oxygen during CVD was not a problem because the oxygen is free to consume the organic

ligands leaving behind only pure iridium. Thus, this discussion in Hoke provides further evidence that there is no organic solvent but instead organic ligands attached to the iridium metal.

The cited references, either alone or in combination do not teach each and every element of applicants' claimed invention. Specially, where in either reference is there any discussion or suggestion to include an organic solvent? There is none, and this cannot be envisioned by the Office when the references provide no guidance. Further, what is the basis of motivation to add an organic solvent? The Courts have addressed the very question numerous times, and have stated that "[t]he mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification." *In re Mills*, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990). Further, the Office is respectfully reminded that in order to make a legally sufficient rejection based on a modification of the reference disclosure, the areas of the reference that suggest the modification must be explained with specificity. See, *Ex parte Humphreys*, 24 U.S.P.Q.2d 1255, 1262 (B.P.A.I. 1992). Thus, the Office seems to be merely reinterpreting the prior art in light of the applicants' disclosure, in order to reconstruct the applicants' claimed invention, but without any instructional or motivating basis in the reference itself. Such approach is improper and legally insufficient to establish any *prima facie* case of obviousness.

Thus, applicants' claimed invention is not obvious in light of the combination proposed by the Office because the cited references do not teach or suggest the presently claimed invention. For these reasons, the Office has not met its burden of establishing a *prima facie* case of obviousness. Applicants therefore request that the rejection of claims 1-4, 7, 13-22, 26, 35-39 and 42-43 on the basis of obviousness be withdrawn.

Fees Payable

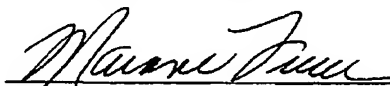
Applicants have added two additional dependent claims with a fee due of \$100.00. This amount is authorized to be charged in the attached credit card authorization form. Authorization also is hereby given to charge any deficiency in applicable fees for this response to Deposit Account Number 08-3284 of Intellectual Property/Technology Law.

Conclusion

Applicants have satisfied the requirements for patentability. All pending claims are free of the art and fully comply with the requirements of 35 U.S.C. §112. It therefore is requested that Examiner Talbot

reconsider the patentability of all pending claims, in light of the distinguishing remarks herein and withdraw all rejections, thereby placing the application in condition for allowance. Notice of the same is earnestly solicited. In the event that any issues remain, Examiner Talbot is requested to contact the undersigned attorney at (919) 419-9350 to resolve same.

Respectfully submitted,



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